

IN THE CLAIMS

Please add the following new Claims:

AI 31. (New) A method of suppressing reduction of performance of a polishing pad comprising:

mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) adenine, (5) a heterocyclic compound with a heteropentacycle, without a benzene ring forming the skeleton, and with a functional group, (6) a heterocyclic compound with a heteropentacycle, with a benzene forming the skeleton and with a functional group containing no sulfur atoms, (7) a heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton, and (8) a derivative of any of compounds (1) through (7);

supplying said aqueous dispersion to the surface of a polishing pad; and

chemical mechanical polishing a polishing surface of an object in need thereof in the presence of said aqueous dispersion.

32. (New) The method of Claim 31, wherein the heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton, and with a functional group is at least one selected from among 7-hydroxy-5-alkyl-1,3,4-triazaindolizine, 2-amino-1,3,4-thiadiazole, 1H-tetrazole-1-acetic acid, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-amino-1,2,4-triazole, 5-amino-1H-tetrazole, 2-mercaptothiazoline and 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole, said heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group containing no sulfur atoms is either or both 2-aminobenzothiazole atoms is either or both 2-aminobenzothiazole and/or 2-amino-6-

alkylbenzothiazole, and said heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton is at least one from among 3-amino-5,6-dialkyl-1,2,4-triazine, 2,3-dicyano-5-alkylpyrazine, 2,4-diamino-6-diallylamino-1,3,5-triazine and phthalazine.

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Cont 33. (New) A method of inhibiting generation of pits on a polishing, comprising:
mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) hypoxanthine, (5) guanine, (6) salicylaldoxime, (7) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group, (8) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring, (9) a heterocyclic compound with a heteropentacycle and without a benzene ring forming the skeleton, (10) a heterocyclic compound with a heteropentacycle and with a benzene ring forming the skeleton, (11) a heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton, and (12) a derivative of any of compounds (1) through (11);
supplying said aqueous dispersion to the surface of a polishing pad; and
chemical mechanical polishing a polishing surface of an object in need thereof in the presence of said aqueous dispersion.

34. (New) The method of Claim 33, wherein said compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group is phenylenediamine, said compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring is at least one from catechol and aminophenol, said

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heterocyclic compound with a heteropentacycle and with no benzene ring forming the skeleton is at least one selected from among 7-hydroxy-5-alkyl-1,3,4-triazaindolizine, 2-amino 1,3,4-thiadiazole, 1-(2-dialkylaminoethyl)-5-mercaptotetrazole, bismuthiol, 5-alkyl-1,3,4-thiadiazole-2-thiol, 3-mercapto-1,2,4-triazole, 4-amino-1,2,4-triazole, 5-amino-1H-tetrazole and triazole, said heterocyclic compound with a heteropentacycle and with a benzene ring forming the skeleton is at least one from among 5-alkyl-1H-benzotriazole, 2-(2-benzotriazolyl)-p-cresol, 2,1,3-benzothiadiazole, benzimidazole, benzotriazole, mercaptobenzothiazole and benzofloxane, and said heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton is at least one from among benzoguanamine, phthalazine and thiocyanuric acid.

35. (New) A method of flattening uneven sections on a polishing surface, comprising: mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) salicylaldoxime, (5) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group, (6) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring, (7) a heterocyclic compound with a heteropentacycle, without a benzene ring forming the skeleton, and with a functional group, (8) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton and with a functional group, (9) a heterocyclic compound with a heterohexacycle bearing two or more hetero atoms and with either or both a functional group and/or a benzene ring forming the skeleton, and (10) a derivative of any of compounds (1) through (9);

supplying said aqueous dispersion to the surface of a polishing pad; and
chemical mechanical polishing a polishing surface of an object in need thereof in the
presence of said aqueous dispersion.

36. (New) The method of Claim 35, wherein said compound with a total of two or
more amino groups and/or hydroxyl groups bonded to an alkylene group is
phenylenediamine, said compound with a total of two or more amino groups and/or hydroxyl
groups bonded to a benzene ring is at least one from catechol and aminophenol, said
heterocyclic compound with a heteropentacycle, with no benzene ring forming the skeleton
and with a functional group is at least one selected from among 7-hydroxy-5-alkyl-1,3,4-
triazaindolizine, 2-amino-1,3,4-thiadiazole, 4,5-dicyanoimidazole, 5-alkyl-1,3,4-thiadiazole-
2-thiol, 1-phenyl-5-mercapto-1H-tetrazole, 2-amino-4,5-dicyano-1H-imidazole, 4-amino-
1,2,4-triazole, 5-amino-1H-tetrazole, 3-mercapto-4-methyl-4H-1,2,4-triazole and 1H-tetrazole,
said heterocyclic compound with a heteropentacycle, with a benzene ring forming the
skeleton and with a functional group is at least one from among mercaptobenzothiazole,
benzofloxane and 2,1,3-benzothiadiaazole, and said heterocyclic compound with a
heterohexacycle bearing two or more hetero atoms and with either or both a functional group
and/or a benzene ring forming the skeleton is phthalazine.

37. (New) The method of Claim 36, wherein said metal film is a copper film.

38. (New) The method of Claim 37, wherein the ratio (S_{10}/S_1) of the tenth removal
rate (S_{10}) to the first removal rate (S_1) for 10 repeated chemical mechanical polishing
operations of a copper film under the following conditions is 0.9 or greater:

Polishing conditions: Polishing pressure, 250 g/cm²; Table rotation speed, 45 rpm;
head rotation speed, 45 rpm; Aqueous dispersion supply rate, 50 ml/min; Polishing time, 3

minute; Porous polyurethane polishing pad.

Sub 39. (New) A method of suppressing reduction of performance of a polishing pad and inhibiting generation of pits on a polishing surface, comprising:

Cont mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) hypoxanthine, (5) adenine, (6) guanine, (7) salicylaldehyde, (8) copperon, (9) cysteine, (10) thiourea, (11) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group, (12) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring, (13) a heterocyclic compound with a heteropentacycle, without a benzene ring forming the skeleton, (14) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton, (15) a heterohexacyclic compound bearing two or more hetero atoms, and (16) a derivative of any of compounds (1) through (15);

supplying said aqueous dispersion to the surface of a polishing pad; and

chemical mechanical polishing a polishing surface of an object in need thereof in the presence of said aqueous dispersion.

40. (New) The method of Claim 39, wherein said organic compound is at least one from among bipyridyl, biphenol, vinylpyridine, salicylaldehyde, 7-hydroxy-5-alkyl-1,3,4-triazaindolizine, 2-amino-1,3,4-thiadiazole, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-amino-1,2,4-triazole, phthalazine and 5-amino-H-tetrazole.

41. (New) The method of Claim 40, wherein said metal film is a copper film.

42. (New) The method of Claim 41, wherein the ratio (S_{10}/S_1) of the tenth removal rate (S_{10}) to the first removal rate (S_1) for 10 repeated chemical mechanical polishing

operations of a copper film under the following conditions is 0.9 or greater:

Polishing conditions: Polishing pressure, 250 g/cm²;

Table rotation speed 45 rpm; head rotation speed, 45 rpm, Aqueous dispersion supply rate, 50 ml/min; Polishing time, 3 minute; Porous polyurethane polishing pad.

43. (New) A method of suppressing reduction of performance of a polishing pad and flattening uneven sections on a polishing surface, comprising:

mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) hypoxanthine, (5) adenine, (6) guanine, (7) salicylaldehyde, (8) copperon, (9) cysteine, (10) thiourea, (11) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group, (12) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring, (13) a heterocyclic compound with a heteropentacycle, without a benzene ring forming the skeleton, (14) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton, (15) a heterohexacyclic compound bearing two or more hetero atoms, and (16) a derivative of any of compounds (1) through (15);

supplying said aqueous dispersion to the surface of a polishing pad; and

chemical mechanical polishing a polishing surface of an object in need thereof in the presence of said aqueous dispersion.

44. (New) The method of Claim 43, wherein said organic compound is at least one from among bipyridyl, biphenol, vinylpyridine, salicylaldehyde, 7-hydroxy-5-alkyl-1,3,4-triazaindolizine, 2-amino-1,3,4-thiadiazole, 5-alkyl-1,3,4-thiadiazole-2-thiol 4-amino-1,2,4-triazole, phthalazine and 5-amino-H-tetrazole.

45. (New) The method of Claim 44, wherein said metal film is a copper film.

46. (New) The method of Claim 45, wherein the ratio (S_{10}/S_1) of the tenth removal rate (S_{10}) to the first removal rate (S_1) for 10 repeated chemical mechanical polishing operations of a copper film under the following conditions is 0.9 or greater:

Polishing conditions: Polishing pressure, 250 g/cm²; Table rotation speed, 45 rpm; head rotation speed, 45 rpm; Aqueous dispersion supply rate, 50 ml/min; Polishing time, 3 minute; Porous polyurethane polishing pad.

47. (New) A method of inhibiting generation of pits on a polishing surface and flattening uneven sections on a polishing surface, comprising:

mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) hypoxanthine, (5) adenine, (6) guanine, (7) salicylaldoxime, (8) copperon, (9) cysteine, (10) thiourea, (11) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group, (12) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring, (13) a heterocyclic compound with a heteropentacycle, without a benzene ring forming the skeleton, (14) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton, (15) a heterohexacyclic compound bearing two or more hetero atoms, and (16) a derivative of any of compounds (1) through (15);

supplying said aqueous dispersion to the surface of a polishing pad; and
chemical mechanical polishing a polishing surface of an object in need thereof in the presence of said aqueous dispersion.

48. (New) The method of Claim 47, wherein said organic compound is at least one

from among bipyridyl, biphenol, vinylpyridine, salicylaldoxime, 7-hydroxy-5-alkyl-1,3,4-triazaindolizine, 2-amino-1,3,4-thiadiazole, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-amino-1,2,4-triazole, phthalazine, 5-amino-H-tetrazole, mercaptobenzothiazole, benzofloxane, 2,1,3-benzothiadiazole, catechol and aminophenol.

49. (New) The method of Claim 48, wherein said metal film is a copper film.

50. (New) The method of Claim 49, wherein the ratio (S_{10}/S_1) of the tenth removal rate (S_{10}) to the first removal rate (S_1) for 10 repeated chemical mechanical polishing operations of a copper film under the following conditions is 0.9 or greater:

Polishing conditions: Polishing pressure, 250 g/cm²; Table rotation speed, 45 rpm; head rotation speed, 45 rpm; Aqueous dispersion supply rate, 50 ml/min; Polishing time, 3 minute; Porous polyurethane polishing pad.

51. (New) A method of suppressing reduction of performance of a polishing pad, inhibiting generation of pits on a polishing surface, and flattening uneven sections on a polishing surface, comprising:

mixing an aqueous dispersion comprising water, an abrasive, and one or more organic compounds selected from the group consisting of (1) biphenol, (2) bipyridyl, (3) vinylpyridine, (4) hypoxanthine, (5) adenine, (6) guanine, (7) salicylaldoxime, (8) copperon, (9) cysteine, (10) thiourea, (11) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to an alkylene group, (12) a compound with a total of two or more amino groups and/or hydroxyl groups bonded to a benzene ring, (13) a heterocyclic compound with a heteropentacycle, without a benzene ring forming the skeleton, (14) a heterocyclic compound with a heteropentacycle, with a benzene ring forming the skeleton,

(15) a heterohexacyclic compound bearing two or more hetero atoms, and (16) a derivative of any of compounds (1) through (15);

supplying said aqueous dispersion to the surface of a polishing pad; and

chemical mechanical polishing a polishing surface of an object in need thereof in the presence of said aqueous dispersion.

52. (New) The method of Claim 51, wherein said organic compound is at least one from among 7-hydroxy-5-alkyl-1,3,4 triazaindolizine, 2-amino-1,3,4-thiadiazole, 5-alkyl-1,3,4-thiadiazole-2-thiol, 4-amino-1,2,4-triazole, phthalazine and 5-amino-H-tetrazole.

53. (New) The method of Claim 52, wherein said metal film is a copper film.

54. (New) The method of Claim 53, wherein the ratio (S_{10}/S_1) of the tenth removal rate (S_{10}) to the first removal rate (S_1) for 10 repeated chemical mechanical polishing operations of a copper film under the following conditions is 0.9 or greater:

Polishing conditions: Polishing pressure, 250 g/cm²; Table rotation speed, 45 rpm; head rotation speed, 45 rpm; Aqueous dispersion supply rate, 50 ml/min; Polishing time, 3 minute; Porous polyurethane polishing pad.

BASIS FOR THE AMENDMENT

Claims 31-54 have been added.

New Claims 31-54 are supported by the Examples (page 29, line 21 to page 40, line 2) and the original claims as filed.